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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,460	11/14/2003	Rodney Smedt	TWI-33110	2490

7590 03/22/2006

STALLMAN & POLLOCK

Attn: Michael A. Stallman  
353 Sacramento Street  
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San Francisco, CA 94111

EXAMINER
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STOCK JR, GORDON J

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 03/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/714,460

Applicant(s)

SMEDT ET AL.

Examiner

Gordon J. Stock

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-12 is/are rejected.
- 7) ☒ Claim(s) 1-6 and 13-22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 20040120.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement (IDS) submitted on January 20, 2004 is being considered by the examiner.

### *Drawings*

2. The Drawings submitted on November 14, 2003 are accepted by the Examiner.

### *Claim Objections*

3. **Claim 1** is objected to for the following: 'the gross overlay' of line 3 and "the diffraction" of line 9 lack antecedent basis. Examiner suggests using -gross overlay- and -diffraction-. **Claim 5** is objected to for depending from an objected base claim. Corrections required.
4. **Claim 2** is objected to for the following: "the images" lacks antecedent basis. Examiner suggests using -images--. **Claim 3** is objected to for depending from an objected base claim. Correction is required.
5. **Claim 4** is objected to for the following: 'the overlay metrology targets' lacks antecedent basis. Examiner suggests using -overlay metrology targets-. Correction is required.
6. **Claim 6** is objected to for the following: "the integer count" of line 4 lacks antecedent basis. Examiner suggests using -an integer count-. In addition, 'by the range fine-' of line 6 should read -by a fine-. Corrections required.
7. **Claim 13** is objected to for the following: 'the gross overlay' of line 7 and 'the fine overlay' of line 9 lack antecedent basis. Examiner suggests using -gross overlay- and -fine

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overlay-. **Claims 14 and 16-21** are objected to for depending upon an objected to base claim.

Corrections required.

8. **Claim 15** is objected to for the following: "the overlay metrology targets" lacks antecedent basis. Examiner suggests using –overlay metrology targets--. Correction is required.

9. **Claim 22** is objected to for the following: 'the gross overlay' of line 8 and 'the fine overlay' of line 10 lack antecedent basis. Examiner suggests using –gross overlay- and –fine overlay-.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

11. **Claims 7, 10, 11, 12** are rejected under 35 U.S.C. 102(a) as being anticipated by **Brill et al. (WO 02/25723)**—cited by applicant.

As for **claim 7**, Brill in a lateral shift measurement using an optical technique teaches an overlay metrology target comprising: one or more upper gratings formed on an upper layer of a sample (Fig. 1: 12), each paired with a respective lower grating formed on a lower layer of the sample (Fig. 1: 14 with Fig. 2b); with at least one grating on the upper layer differing in at least one dimension or shape than its grating pair (Fig. 1: 12 with narrower photoresist component versus 14 with wider aluminum component).

As for **claim 10**, Brill discloses everything as above (see **claim 7**). In addition, he discloses each grating is formed as a parallel series of lines (Fig. 1 with Fig. 2b).

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As for **claim 11**, Brill discloses everything as above (see claim 10). In addition he discloses the lines in the upper and lower grating are parallel to each other (Fig. 1: 12 and 14 with Fig. 2b) and at least one grating differs from its pair in the dimension that is parallel to the grating lines (Fig. 1: thickness of photoresist component of upper grating 12 versus thickness of aluminum component of lower grating 14).

As for **claim 12**, Brill discloses everything as above (see **claim 7**). In addition, he discloses each grating is a two dimensional array (Fig. 1: 12 contains a plurality of photoresist components with height and width and 14 contains a plurality of aluminum components with height and width) of three dimensional features (Fig. 1: 12 and 14 have height and width and third dimension: length in Fig. 2b).

12. **Claims 7-9** are rejected under 35 U.S.C. 102(a) as being anticipated by **Sezginer et al.** (WO 02/065545).

As for **claims 7-9**, Sezginer in an overlay alignment metrology system discloses the following: one or more upper gratings formed on an upper layer of a sample, each paired with a respective lower grating formed on a lower layer of the sample; with at least one grating on the upper layer differing in at least one dimension or shape than its grating pair; wherein, in which one grating is differently sized in the X dimension than its grating pair and one grating is differently sized in the Y dimension than its grating pair; differently sized in the X and Y dimensions than its grating pair, asymmetric in both x and y directions and the pattern is different in the x and y patterns (Fig. 22 and page 35 lines 10-25).

*Allowable Subject Matter*

13. **Claims 1-6 and 13-22** would be allowable if rewritten to overcome the objections stated above.

As to **claim 1**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method for optically inspecting and evaluating a sample the particular generating a total overlay measurement step, in combination with the rest of the limitations of **claims 1-6**.

As to **claim 13**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method for controlling overlay within semiconductor wafers the particular generating a total overlay measurement step, in combination with the rest of the limitations of **claims 13-21**.

As to **claim 22**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method for monitoring overlay in a semiconductor wafers the particular generating a total overlay measurement step, in combination with the rest of the limitations of **claim 22**.

*Conclusion*

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: U.S. Patent 6,842,220 to Dishon et al.

U.S. Patent 6,772,084 to Bischoff et al. (specifically, Figs. 8, 9, 17, 19a, 19b)

*Fax/Telephone Numbers*

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

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1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and

2) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

*Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: (571) 273-8300*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (571) 272-2431.

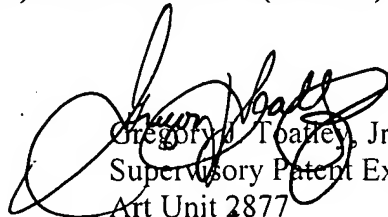
The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr., can be reached at 571-272-2800 ext 77.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private Pair system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gs

March 16, 2006

  
Gregory J. Toatley, Jr.  
Supervisory Patent Examiner  
Art Unit 2877  
20 Mar 06